Space Weather Forecast

Issued on Monday, 16 October 2023 at 13:26 Local

This forecast provides a four day assessment of space weather events. The probabilities stated below are for reaching or exceeding the given levels. For more information about space weather impacts please see the Met Office Space Weather Scales https://www.metoffice.gov.uk/weather/learn-about/space-weather/uk-scales

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Space Weather Forecast Headline: Chance of Minor Geomagnetic Storm G1 midweek. Rising Chance of R1 Minor Radio Blackouts.

Analysis of Space Weather Activity over past 24 hours

Solar Activity: Solar activity was low in the past 24 hours, with occasional low-level Common-class X-ray flares, peaking with a long duration event at 16/1051UTC from a small sunspot group in the northeast of the Earth facing side of the Sun. Other small flares were generally concentrated near the oncoming eastern solar horizon.
There are now up to seven sunspot regions on the facing side, with no one group dominating in terms of activity, in part due to all being relatively magnetically simple.
No Earth-directed CMEs were observed, though a possible CME from the recent flare in the northeast will be analysed.
Solar Wind / Geomagnetic Activity: The solar wind speed eased to background levels. The number of particles in the solar wind was steady at background levels, while the magnetic field was similarly unremarkable. The net result of the above solar wind measures was for Quiet geomagnetic activity throughout.

Energetic Particles / Solar Radiation: No solar radiation storms were observed.

Four-Day Space Weather Forecast Summary

Solar Activity: There is a slightly rising Chance of Moderate-class flares at first in the four-day period as a result of potential returning sunspot regions crossing the eastern solar horizon.
Solar Wind / Geomagnetic Activity: A fast wind emanating from another 'coronal hole' should arrive later on Day 1 (16 Oct), bringing a chance of Minor Geomagnetic Storm G1. Up to two CMEs then feature in the forecast, both low confidence and both glances, but potentially crossing Earth orbit later in the UTC morning of Wednesday 18 October, and giving a further chance of G1, probably with a preceding lull in activity.
Energetic Particles / Solar Radiation: No solar radiation storms are expected.

Issued by Met Office Space Weather Advisor, Tel: +44 (0) 330 135 4254 Email: moswoc@metoffice.gov.uk

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Geomagnetic Storms:

Geo-Magnetic Storm Probability (Exceedance)	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Minor or Moderate	G1 to G2	No	20	20	30	10
Strong	G3	No	1	1	1	1
Severe	G4	No	1	1	1	1
Extreme	G5	No	1	1	1	1

Radio Blackouts - X Ray Flares:

X Ray Flares Probability	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Active	R1-R2 M Class	No	25	30	30	30
Very Active	R3 to R5 X	No	1	1	1	1

Solar Radiation Storms - (High Energy Protons):

Radiation Storms Probability (Exceedance)	Level (cm^{-2} sr^{-1} s^{-1})	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Active	≥ S1	No	2	2	2	2
Very Active	≥ S3 *	No	1	1	1	1

* S3 ≥ 10 MeV ≥ 1000 pfu and / or ≥ 50 MeV ≥ 10 pfu. (pfu = $cm^{-2}sr^{-1}s^{-1}$)

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